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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,205	04/15/2004	Sun Hee Yang	5895P055	1162

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EXAMINER	
DAFTUAR, SAKET K	
ART UNIT	**PAPER NUMBER**
2451	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/826,205	YANG ET AL.	
	Examiner	Art Unit	
	SAKET K. DAFTUAR	2451	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Amendment

1. This office action is response to the amendment filed on January 12th, 2009. Claims 1-15 are presented for the further examination.

Response to Arguments

2. Applicant's arguments, see pages 1-2 of remarks, filed January 12th, 2009, with respect to the rejection(s) of claims 1-15 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made further in view of Roden et al. US Patent Number 6,412,077 B1.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 8 recites the limitation "the value". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava U.S. Patent Number 6,856,991 B1 (hereinafter Srivastava) and Bahl U.S. Patent Number 7,003,574 B1 (hereinafter Bahl) and further in view of Roden et al. US Patent Number 6,412,077 B1 (hereinafter Roden).

As per claim 1, Srivastava discloses a processor coupled to [see column 28,lines 5-48] a packet analyzing unit, the packet analyzing unit operates to determine whether a session label has been attached to a received packet, analyzing header information of the received packet to learn session information [evaluating each frame] for the received packet without a session label, and attaching a session label to a header of the received [edge label switch router creates a label and applies it to packets] packet without a session label (see column 3, line 20 – column 4,line 9); a load balancing processing unit that operates to assigning one of the server [selected server] to a session of the received packet without the session label attached in view of load balancing (see column 6, lines 5-31);a session label switching unit that operates hardware-switching [hop-by-hop routing between nodes] the received packet with the session label attached [MPLS labels to all nodes] using only the session label

information without performing a packet analysis process or server assignment process [evaluating each frame, column 3,line 20- column 4, line 9] (see column 6,lines 5-43);a session managing unit [edge label switch router] for managing and maintaining relevant information and states of sessions requested by the clients; and a session label managing unit for assigning the session label, and withdrawing and managing session label not in use (column 3, line 20- column 4, line 9, each edge label switch router maintains a label forwarding information base as), wherein the load balancing apparatus uses Multi-Protocol Label Switching (MPLS) session labels and analyzes requests from the clients and distributes the requests among the servers [see column 9, lines 1-45; column 28, lines 5-48] and maintaining a specific label value associated with each incoming and outgoing labels (see column 3, line 20 – column 4,line 9; see column 6, lines 7-43; column 21, lines 47-59).

Srivastava explicitly discloses about specific packet session label value, in addition, Bahl also teaches TCP packets possessing the same identifier (see Abstract) and TCP response in form of response session identifier (see Abstract, See Figures 3-5, see column 10, line 11 – column 11, line 43, see column 13, line 5 - column 14, line 14) and transmitting the packets by modifying the header (see Figures 7A-7B).

However, Both Srivastava and Bahl are silent about incrementing a predetermined value of session label sent to a client and decrementing the predetermined value of the session label sent to the server.

Rodent teaches a known techniques or mechanism for performing a disconnect policy involving authorizing a data communication session between a client and a first server, wherein each established session is maintain by the session counter in the distributed session information. Therefore, Roden teaches the one of the servers increments the value of the C2S session in the received packet by a predetermined number to generate a Server-To-Client (S2C) session label and transmits a response packet including the S2C session to a requesting client (see column 11, line 42 – column 12, line 41; column 12, lines 52 – 64, column 13, line 25 - column 14, line 21; see column 15, line 20 - column 17, line 8 session establishment and counter value; see column 21, line 7 – column 22, line 30 for incrementing local session counter; see figures 2A-5D), and wherein the requesting client decrements the value of the S2C session by the predetermined number to generate the C2S session and transmits a packet including the C2S session to the one of the servers (see column 11, line 42 – column 12, line 41; column 12, lines 52 – 64, column 13, line 25 - column 14, line 21; see column 15, line 20 - column 17, line 8 session establishment and counter value; see column 30, lines 26 – 50 for decrementing local session counter; see column 32, lines 16-63).

Thus, it would have been recognized by one of ordinary skill in the art that applying the known technique, *Under KSR rationale – applying a known technique to a known device ready for improvement to yield predictable results*, taught by Roden to the load balancer communicating using an session identifier

in TCP control block in established TCP connection as taught by Srivastava and Bahl would have yielded predicable results and resulted in an improved load balancing device namely, an improved load balancing device that would positively improved the load balancing techniques and method in load balancing server or network router establishing a communication session using a session identifier to provide an efficient mechanism for authorizing a data communication session between a client and a server whereas one or more sessions are authorized and established by the server and maintaining a session counter value to determined the number of active sessions established between a client and a server.

As per claim 2, Srivastava discloses a session label inspecting unit for inspecting whether the session label has been attached to the received packet, transmitting the received packet to the session label switching unit to switch the received packet if the session label has been attached to the received packet, and transmitting the received packet to a packet contents analyzing unit if the session label is not attached to the received packet (see column 6, lines 7-43, column 16, lines 20-42; Figures 3A –3F);the packet contents analyzing unit for learning the session information by analyzing the header information of the received packet ranging from third to seventh layers [Layer 3 in OSI, column 3, line 20 – column 4, line 9] of the received packet, inspecting whether a session of the received packet is a new session, transmitting the received packet of the new session to the load balancing processing unit to assign the server to the new

session if the session is new, and transmitting the packet of an existing session to a predetermined server [selected server based on hop-by-hop mapping] if the session is not new[create new Label at last nodes for each packet and transmitting the labels to the all node in the existing session, see column 6, lines 7-43]; and a session label attaching unit for attaching the assigned session label to the header of the received packet [distributing MPLS labels to all nodes in mapped network], (see column 6, lines 7-43; column 25, line 45 – column 26, line 59).

As per claim 3, Srivastava discloses the session label is an MPLS-based session label [MPLS label, see column 6, lines 7-43].

As per claim 4, Srivastava discloses a load balancing algorithm unit for determining a load balancing server using a specific algorithm in view of information including a round robin method, a minimally connected server, weights and response time from the server (column 12, lines 46-53 with column 2, lines 36-41); a server configuration/state managing unit for managing configurations and states of the servers by performing real time server state monitoring or configuration management (column 4,lines 43-43); and a service acceptance control unit for refusing a service request of the new session if the existing session is serviced (see column 4,lines 58- 67).

As per claim 5, Srivastava discloses the session label switching [labeling mechanism, column 3, lines 20 – 37] unit performs label switching with reference to a value of the session label attached to the header of the received packet, and

a label switching table [route table] including information of line cards and ports through which the received packet is input/output (column 6, lines 7-43, column 25, line 45 – column 26, line 59).

As per claim 6, Srivastava discloses the session managing unit recognizes start, determination and interruption of the session, and adds, deletes and changes relevant information in the session table (column 25, line 45 – column 26, line 59).

As per claim 7, Srivastava discloses the server load balancing apparatus according to claim I, wherein the assignment of the session label is performed in such a way that a Client-To-Server (C2S) session label is assigned an odd number and a Server-To-Client (S2C) session label is assigned an even number obtained by adding 1 to the value of the C2S session label (column 6, lines 7-43; column 21, lines 47-59).

As per claim 8, Srivastava discloses analyzing, at server load balancing apparatus, a header of a received packet and assigning a C2S session label when the client requests service from the server through the server load balancing apparatus and determining if a session has began (see column 3, line 20 – column 4,line 9; see column 6, lines 7-43 with Figures 1A-1B and column 16, lines 20-42); assigning, at server load balancing apparatus, a specific server for servicing the session in view of load balancing, attaching the assigned C2S session label to the received packet, and transmitting the received packet with the C2S session label attached to the server (see column 3, line 20 – column

4,line 9; see column 6, lines 7-43 with Figures 1A-1B and 4; column 16, lines 20-42);automatically assigning, at the server , an S2C session label, that is, an opposite direction session label(see column 3, line 20 – column 4,line 9; see column 6, lines 7-43; column 16, lines 20-42);processing, at the server, the service request from the requesting client, attaching the assigned S2C session label to an response packet according to a result of the processing, and transmitting the response packet with the S2C session label to the server load balancing apparatus (see column 3, line 20 – column 4,line 9; see column 6, lines 7-43; column 16, lines 20-42);label switching, at server load balancing apparatus, the response packet to the client using the value of the session label (see column 3, line 20 – column 4,line 9; see column 6, lines 7-43 with Figures 1A-1B and 4; column 16, lines 20-42); automatically assigning, at the requesting client, the C2S session label, that is, another opposite direction session label to the response packet, (see column 3, line 20 – column 4,line 9; see column 6, lines 7-43 with Figures 1A-1B and 4; column 16, lines 20-42);attaching, at the requesting client, a packet with the assigned C2S session label and transmitting the packet with the assigned C2S session label to the server load balancing apparatus when the requesting client transmits the packet to a destination server (see column 3, line 20 – column 4,line 9; see column 6, lines 7-43 with Figures 1A-1B and 4; column 16, lines 20-42); and label switching, at the server load balancing apparatus, the packet with C2S session label attached to the destination server (see column 3, line 20 – column 4,line 9; see column 6, lines

7-43 with Figures 1A-1B and 4; column 16, lines 20-42);wherein the server load balancing apparatus determines one of the server for connection using information of the session label with respect to the packet with the session label attached (see column 3, line 20 – column 4,line 9; see column 6, lines 7-43 with Figures 1A-1B and 4; column 16, lines 20-42).

Srivastava explicitly discloses about specific packet session label value, in addition, Bahl also teaches TCP packets possessing the same identifier (see Abstract) and TCP response in form of response session identifier (see Abstract, See Figures 3-5, see column 10, line 11 – column 11, line 43, see column 13, line 5 - column 14, line 14) and transmitting the packets by modifying the header (see Figures 7A-7B).

However, Both Srivastava and Bahl are silent about incrementing a predetermined value of session label sent to a client and decrementing the predetermined value of the session label sent to the server.

Rodent teaches a known techniques or mechanism for performing a disconnect policy involving authorizing a data communication session between a client and a first server, wherein each established session is maintain by the session counter in the distributed session information. Therefore, Roden teaches the one of the servers increments the value of the C2S session in the received packet by a predetermined number to generate a Server-To-Client (S2C) session label and transmits a response packet including the S2C session to a requesting client (see column 11, line 42 – column 12, line 41; column 12, lines 52 – 64,

column 13, line 25 - column 14, line 21; see column 15, line 20 - column 17, line 8 session establishment and counter value; see column 21, line 7 – column 22, line 30 for incrementing local session counter; see figures 2A-5D), and wherein the requesting client decrements the value of the S2C session by the predetermined number to generate the C2S session and transmits a packet including the C2S session to the one of the servers (see column 11, line 42 – column 12, line 41; column 12, lines 52 – 64, column 13, line 25 - column 14, line 21; see column 15, line 20 - column 17, line 8 session establishment and counter value; see column 30, lines 26 – 50 for decrementing local session counter; see column 32, lines 16-63).

Thus, it would have been recognized by one of ordinary skill in the art that applying the known technique, *Under KSR rationale – applying a known technique to a known device ready for improvement to yield predictable results*, taught by Roden to the load balancer communicating using an session identifier in TCP control block in established TCP connection as taught by Srivastava and Bahl would have yielded predicable results and resulted in an improved load balancing device namely, an improved load balancing device that would positively improved the load balancing techniques and method in load balancing server or network router establishing a communication session using a session identifier to provide an efficient mechanism for authorizing a data communication session between a client and a server whereas one or more sessions are authorized and established by the server and maintaining a session counter

value to determined the number of active sessions established between a client and a server.

As per claim 9, Srivastava discloses wherein it is inspected whether the MPLS session label has been attached to the packet input into the server load balancing apparatus, and the packet with the MPLS session label attached is fast-switched using only information of the session label (see column 3, line 20 – column 4, line 9; see column 6, lines 7-43; column 12, lines 41-43).

As per claim 10, Srivastava discloses wherein it is inspected whether the MPLS session label has been attached to the packet input into the server load balancing apparatus, and only the header of the packet header without the session label attached is selectively analyzed (see column 3, line 20 – column 4,line 9; see column 6, lines 7-43).

As per claim 11, Srivastava discloses the step of assigning the specific server comprises determining whether to accept or refuse the session of only the packet without the session label attached (see column 3, line 20 – column 4,line 9; see column 6, lines 7-43).

As per claim 12, Srivastava discloses the server load balancing apparatus omits a function of performing mapping between a virtual IP address and an IP addresses of the server in such a way that the server attaches the virtual IP address to the header of the packet with the session label attached (see column 1, lines 37-58; column 2, lines 25-35).

As per claim 13, Srivastava discloses the C2S session label is assigned an odd number, and the S2C session label is automatically assigned a value obtained by adding 1 to the value of the C2S session label (see column 3, line 20 – column 4,line 9; see column 6, lines 7-43; column 21, lines 47-59).

As per claim 14, Srivastava discloses the assignment of the bi-directional session labels (S2S and S2C) is performed by automatically recognizing the value of the opposite directional label without using an additional protocol for assigning a session label to a packet in such a way the server and the client add 1 to and subtract 1 from the value of the session label that is attached to the packet received from an opposite party, respectively (see column 3, line 20 – column 4,line 9; see column 6, lines 7-43; column 21, lines 47-59).

As per claim 15, Srivastava discloses the session label is attached to the header of the received packet according to a MPLS header configuration (see column 3, line 20 – column 4, line 9; see column 6, lines 7-43).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. MPLS Fast Reroute Without Full Mesh Traffic Engineering by Vasseur et al. U.S. Patent Number 7,230,913 B1.

b. Disconnect Policy for Distributed Computing System by Roden et al. US Patent Number 6,412,077 B1.

c. Dynamically Adjusting MultiProtocol Label Switching (MPLS) Traffic Engineering Tunnel Bandwidth by Goguen et al. U.S. Patent Number 6,665,273 B1.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saket K. Daftuar whose telephone number is 571-272-8363. The examiner can normally be reached on 8:30am-5:00pm M-W.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on 571-272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. K. D./

Examiner, Art Unit 2451

/John Follansbee/

Supervisory Patent Examiner, Art Unit 2451